Record of Decision
Building 49 Auxiliary Power Plant
Naval Magazine Pearl Harbor
West Loch Branch
OAHU, HAWAII

September 2006

Department of the Navy
Commanding Officer
Naval Facilities Engineering Command, Hawaii
400 Marshall Road
Pearl Harbor, HI 96860-3139

Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0087

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Prepared for:

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Commanding Officer
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400 Marshall Road
Pearl Harbor, HI 96860-3139

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ACRONYMS AND ABBREVIATIONS

µg/100 cm^2	micrograms per 100 square centimeters
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOH	State of Hawaii Department of Health
DON	Department of the Navy
DOT	Department of Transportation
EPA	Environmental Protection Agency, United States
FFA	Federal Facilities Agreement
mg/kg	milligram per kilogram
mg/L	milligram per liter
NAVFAC Hawaii	Naval Facilities Engineering Command Hawaii
NAVMAG PH	Naval Magazine, Pearl Harbor
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	no further action
NFESC	Naval Facilities Engineering Service Center
NPL	National Priority List
PACNAVFACENGCOM	Pacific Division, Naval Facilities Engineering Command
PCB	polychlorinated biphenyl
PHNC	Pearl Harbor Naval Complex
PWC	Public Works Center, Navy
RAB	restoration advisory board
RACR	Remedial Action Completion Report
RCRA	Resource Conservation and Recovery Act
ROD	record of decision
RVR	remediation verification report
SARA	Superfund Amendments and Reauthorization Act
TSCA	Toxic Substances Control Act
UIC	underground injection control
U.S.	United States
UST	underground storage tank

1. Declaration

1.1 SITE NAME AND LOCATION

This Record of Decision (ROD) has been prepared by the United States (U.S.) Navy (Navy) for the Building 49 Auxiliary Power Plant (herein referred to as Building 49) located within the Naval Magazine Pearl Harbor (NAVMAG PH), West Loch Branch (West Loch), Oahu, Hawaii (Figure 1). West Loch is an operable unit located within a geographic area known as the Pearl Harbor Naval Complex (PHNC). PHNC is listed on the National Priority List (NPL), which identifies priorities among known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories.

This ROD incorporates elements of a streamlined Remedial Action Completion Report (RACR), as described in the *Draft Final Guidance to Documenting Milestones Throughout the Site Closeout Process* (Department of the Navy [DON] 2006). The purpose of a streamlined RACR is to document the achievement of the removal action objectives at a site.

1.2 STATEMENT OF BASIS AND PURPOSE

This ROD presents the no further action (NFA) decision for Building 49. The final decision was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Information supporting the decisions leading to the selected remedy are contained in the Administrative Record file for the site. The State of Hawaii Department of Health (DOH) and the U.S. Environmental Protection Agency (EPA) concur with this NFA decision as indicated by signature in Section 1.6.

1.3 ASSESSMENT OF SITE

The Building 49 site consists of three components: (1) underground storage tank (UST) WL-49, used to store emergency generator fuel; (2) an electrical transformer containing polychlorinated biphenyls (PCBs); and (3) a drain system leading from the building interior to a nearby underground injection well. Removal actions were necessary for each of these components to protect human health and the environment from PCBs present in surface and shallow subsurface soil, from PCBs present in concrete within the building, and from hydrocarbon fuels present in subsurface soil and groundwater.

1.4 DESCRIPTION OF THE SELECTED REMEDY

UST WL-49 and hydrocarbon fuels in surrounding soils were excavated and disposed of; PCB contamination has been removed from soil and concrete in and around the building; and hydrocarbon fuels have been removed from soil and groundwater in the injection well. Following these removal actions, the selected remedy for Building 49 is NFA.

A limited time-critical soil removal action was conducted at Building 49 between June 1999 and September 2000, when approximately 10 yards of PCB-contaminated soils were excavated and disposed of off-island at a facility approved to accept Toxic Substances Control Act (TSCA) and CERCLA wastes. Removal of a floor trench drain and associated piping (i.e., a drain system) generated one 55-gallon drum and three tri-wall boxes containing soil and debris. The removal action was conducted to reduce potential risks to human and ecological receptors to acceptable levels. Pre-excavation characterization sampling defined the lateral extent of PCBs in soils exceeding the cleanup goal of 1 milligram per kilogram (mg/kg). Soil with PCBs exceeding this cleanup goal was excavated and disposed of off site. Analytical results of samples representing post-excavation

conditions are below the project cleanup levels, with the exception of a single soil sample result of 1.1 mg/kg. A risk evaluation was performed that shows the 95% upper confidence limit of the mean exposure point concentration is well below the project cleanup level of 1.0 mg/kg. The removal did not reduce the toxicity or volume of PCB-contaminated soil but resulted in a reduction in mobility through containment in a TSCA- and CERCLA-approved disposal facility. Removal of the drain system also resulted in a reduction in mobility and elimination of a potential migration pathway associated with releases to the floor trench drain in Building 49.

In June 2001, the Navy Public Works Center (PWC) Pearl Harbor removed the transformer containing PCBs from Building 49. Oil-stained concrete and underlying soil were also removed within and beneath the building between August 2001 and March 2002. Concrete wipe samples indicated that remaining PCB concentrations on the concrete surfaces were below the cleanup level of 10 micrograms per 100 square centimeters (µg/100 cm^2). Soil samples collected below the concrete, following removal of approximately 12 inches of subsoil, contained PCBs at concentrations below the cleanup goal of 1 mg/kg. No further action is required within or beneath the building. The Navy disposed of the PCB-contaminated soil and concrete at an approved off-island disposal facility. The removal and disposal of these materials reduced contaminant mobility and eliminated potential exposure pathways at the Building 49 site.

The removal action objective of protecting human health and the environment was achieved. Therefore, Building 49 is in a protective state for human health and the environment, and meets the criteria for unrestricted use; and the selected remedy is NFA. This decision is supported by documents in the information repository for West Loch. The Restoration Advisory Board (RAB) team—composed of representatives of the DOH, EPA, Navy, and the community—provided review and comment leading to selection of this NFA decision.

1.5 STATUTORY DETERMINATIONS

The Navy is the lead agency for environmental cleanup at Navy sites, such as the removal of PCB-contaminated soil at Building 49. The EPA and DOH have provided oversight during environmental investigations and cleanup activities on Navy properties.

Following removal actions to address PCBs in soil and concrete, and fuel hydrocarbons in soil and groundwater, the Navy has determined that Building 49 is in a protective state for human health and the environment and meets criteria for unrestricted use; therefore, no further action is planned. This decision is based on the fact that, with one exception, residual PCBs in soils present at Building 49 are below the TSCA residential cleanup level of 1 mg/kg for unrestricted use (40 Code of Federal Regulations[CFR], Part 761 1988). One soil sample indicated a PCB concentration below 1 mg/kg when tested using a field analytical method, but indicated a concentration of 1.1 mg/kg when analyzed by a fixed-base laboratory. However, the 95% upper confidence limit of the mean exposure point concentration is 0.55 mg/kg, which is well below the cleanup goal of 1 mg/kg. Residual PCBs in concrete present inside Building 49 are below the TSCA residential cleanup level of 10 µg/100 cm^2 for unrestricted use (40 CFR, Part 761 1988).

In addition, UST WL-49 and hydrocarbon fuels in surrounding soils have been excavated and disposed of (OHM Remediation Services 1996). Residual fuel hydrocarbon concentrations of 50 mg/kg in soils are far below Tier 1 Action Levels applicable at the time of cleanup (DOH 1995). The floor trench drain and injection well system were also removed and disposed of. Hydrocarbon fuels present in the injection well soil and groundwater were removed, and residual fuel hydrocarbon concentrations in remaining soils are below the Tier 1 Action Levels applicable at the time of cleanup (DOH 1995). PCB concentrations in residual injection well soil are also below the TSCA residential cleanup level of 1 mg/kg for unrestricted use (40 CFR, Part 761 1988).

Therefore, additional site cleanup work is not needed for Building 49. Also, based upon the above conditions, the 5-year review requirement under CERCLA Section 121(c) is not applicable.

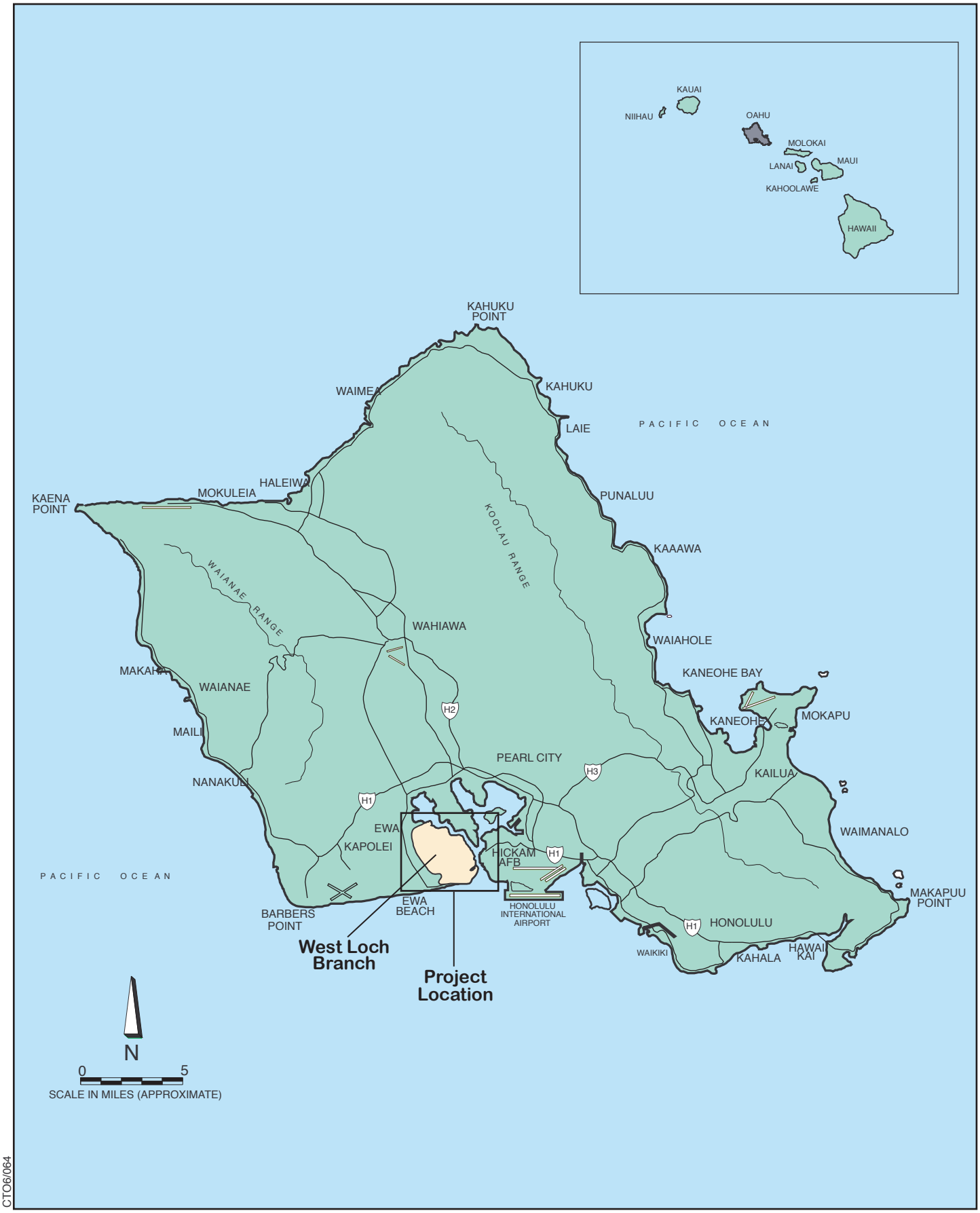

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Figure 1
Project Location Map
NAVMAG Pearl Harbor West Loch Branch
Oahu, Hawaii

1.6 AUTHORIZING SIGNATURES

The Navy and EPA have jointly selected the remedy described in this ROD, and have determined that the NFA decision allows unrestricted land use at Building 49 NAVMAG PH, West Loch, Oahu, Hawaii.

Clyde K. Yokota

C.K. Yokota
Director, Regional Environmental Department
By direction of: Commander, Navy Region Hawaii

9/27/06
Date

Kathleen H. Johnson

Kathleen H. Johnson
Chief, Federal Facility and Site Cleanup Branch
Superfund Division, U.S. EPA Region 9

9/28/06
Date

The State of Hawaii Department of Health concurs with the selected remedy as documented in this ROD.

Laurence K. Lau

Laurence K. Lau
Deputy Director of Environmental Health
State of Hawaii, Department of Health

9/28/06
Date

2. Decision Summary

2.1 SITE NAME, LOCATION, AND DESCRIPTION

NAVMAG PH West Loch encompasses 3,240 acres and serves as a military shipping-and-receiving facility (see Figure 1). Building 49 is located on Arizona Road north of First Street (Figure 2).

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.2.1 Site History

NAVMAG PH receives, renovates, maintains, stores, and issues ammunition, explosives, expendable ordnance items, weapons, and technical ordnance material, and also performs additional tasks as required. Nearly all ammunition used by the military services in Hawaii is stored or handled by NAVMAG PH. As part of ordnance-handling tasks, West Loch provides marine terminal services for all loading and unloading of ocean-transported Department of Defense ordnance at its wharf facilities.

Building 49 previously housed an emergency generator and transformer that provided auxiliary power for West Loch. A UST was used to store hydrocarbon fuel for the generator. Martech, USA removed UST WL-49 (DOH I.D. 9-202353) in June 1992. OHM Remediation Services Corp. remediated petroleum-contaminated soil associated with the UST in May 1995.

In the past, in-service electrical transformers were filled with dielectric fluid known to contain PCBs. Historical maintenance practices included periodic sampling of the transformer oil, testing for dielectric properties, and disposing of these samples on the ground immediately adjacent to the transformer or the building housing the transformer. In 1998, the Navy investigated soil immediately adjacent to various sites with transformers known to contain PCB oils. Although there is no record of transformer leaks or transformer oil spills at Building 49 (IT 1999a), analytical results from the 1998 investigation reported elevated concentrations of PCBs within and surrounding Building 49 (PWC 1998). PCBs were detected in soil immediately adjacent to Building 49 at concentrations ranging from less than 1 mg/kg to 11 mg/kg. The contamination is attributed to historical Navy transformer oil testing practices.

2.2.2 Enforcement Activities

There have been no enforcement activities at Building 49.

2.3 COMMUNITY PARTICIPATION

Public participation in the decision process for environmental activities at West Loch has continually been encouraged throughout the environmental restoration and site closure processes. In an effort to involve the public in the decision-making process, a RAB was established. The RAB is composed of the DOH, the EPA, the Navy, and community representatives. The Navy has held RAB meetings (typically on a quarterly basis) and other public meetings, as well as issued fact sheets that summarize the site investigation and cleanup activities. The RAB team has provided review and comment leading to selection of this NFA decision. Additionally, the Navy also established a point-of-contact for the public in the Naval Facilities Engineering Command, Hawaii (NAVFAC Hawaii).

A notice of availability for the Proposed Plan was published in the *Honolulu Advertiser* and *Star Bulletin* on June 11, 2006. A public comment period was held from June 11, 2006 through July 11, 2006. In addition, a public meeting was conducted on June 20, 2006, to present the Proposed Plan. At this meeting, the Navy answered questions about the site and the NFA decision. Written

comments on the Proposed Plan were received during the comment period. The Navy's responses to verbal and written comments are presented in the Responsiveness Summary, which is included as Attachment A of this ROD. Corresponding changes to this document incorporate these responses.

Throughout the investigation and cleanup process, the Navy has prepared several fact sheets to inform and update the community on the progress of West Loch environmental investigation and cleanup activities. These fact sheets and other project documents, including work plans, technical reports, and other materials relating to the West Loch investigation activities, can be found in the information repository at the following addresses:

Ewa Beach Public Library
91-950 North Road
Ewa Beach, Hawaii 96706
(808) 689-1204

Pearl City Library
1138 Waimano Home Road
Pearl City, Hawaii 96782
(808) 453-6566

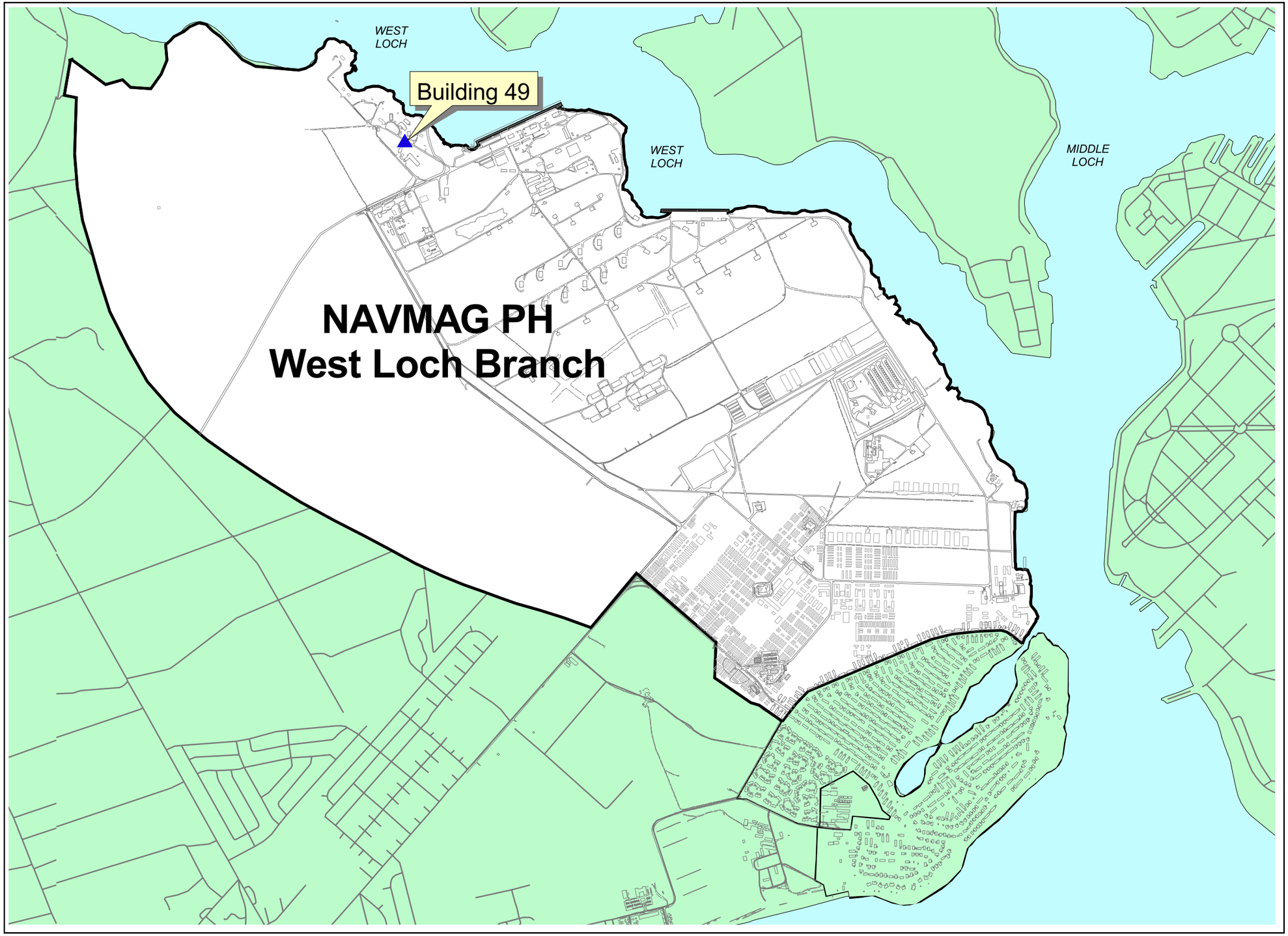
Hamilton Library at the University of Hawaii at Manoa
Hawaiian and Pacific Collection
2550 McCarthy Mall
Honolulu, Hawaii 96822
(808) 956-8264

Additional project information is located in the Administrative Record file located at NAVFAC Pacific in Pearl Harbor. The address for the Administrative Record file is provided below:

Naval Facilities Engineering Command, Pacific
258 Makalapa Drive, Suite 100
Attn: NAVFACPAC EV4
Pearl Harbor, Hawaii 96860-3134

2.4 SCOPE AND ROLE OF THE NO FURTHER ACTION DECISION

The Building 49 site consists of three components: (1) UST WL-49, used to store emergency generator fuel; (2) an electrical transformer containing PCBs; and (3) a drain system leading from the building interior to a nearby underground injection well. Removal actions were necessary for each of these components to protect human health and the environment from PCBs present in surface and shallow subsurface soil, from PCBs present in concrete within the building, and from hydrocarbon fuels present in subsurface soil and groundwater.



LEGEND

- Building 49 Transformer
- West Loch Branch Boundary
- Roads
- Structures
- Surrounding Area
- Ocean

USCols01/CTO-87/WestLoch/arcview/projects/west_Loch_tom.apr

SOURCE

- Base mapping from 1997 aerial photography (Draft Version)

N

900 0 900 1800 Feet

Figure 2
Site Location Map
Building 49 Transformer
NAVMAG Pearl Harbor, West Loch Branch,
Oahu, Hawaii

UST WL-49 and hydrocarbon fuel in surrounding soil was excavated and disposed of; PCB contamination has been removed from soil and concrete in and around the building; and hydrocarbon fuels have been removed from soil and groundwater in the injection well. Following these removal actions, the selected decision for Building 49 is NFA.

The Building 49 site is located at NAVMAG PH West Loch, which in turn is an operable unit within the PHNC. PHNC is listed on the NPL, which identifies priorities among known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The Navy, the EPA, and DOH, through a Federal Facilities Agreement (FFA) (DON 2004), have agreed to:

- Ensure that environmental impacts associated with past and present activities conducted are thoroughly investigated and appropriate remedial actions taken, as necessary, to protect public health, welfare, and the environment;

- Establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions in accordance with CERCLA, SARA, NCP, Superfund guidance and policy, Resource Conservation and Recovery Act (RCRA) guidance and policy, and applicable State of Hawaii law;

- Facilitate cooperation, exchange of information, and participation of the Navy, EPA, and DOH; and

- Ensure adequate assessment of potential injury to natural resources necessary to ensure the implementation of response actions appropriate for achieving suitable clean-up levels.

The cleanup activities and NFA decision for Building 49 are designed to fulfill the objectives of the FFA for PHNC. In accordance with the FFA, NFA is appropriate for sites where no current or potential unacceptable risk to human health or the environment exists. Based on soil and concrete wipe sample results presented in the *Final Record of Closure* (OHM 1996) and the *Final Remediation Verification Report* (RVR) (Shaw 2006) documenting the removal actions, as well as the *Proposed Plan* (Earth Tech 2006), the DOH, EPA, and Navy concluded that the CERCLA removal actions have successfully lowered risks to human health and the environment, and that the NFA decision allows unrestricted use at this site.

2.5 SITE CHARACTERISTICS

2.5.1 Site Description and Location

Building 49 is located on Arizona Road, approximately 1,300 feet north of the First Street entry gate to NAVMAG PH West Loch. The building is a 672-square-foot concrete block structure constructed in 1943. Arizona Road borders the building to the north, and a concrete sidewalk borders the building to the south. An exterior concrete apron, measuring 4 feet wide by 15 feet long, lies on the west side of the building. The nearest additional structure is an abandoned administration building to the southwest. No other facilities or structures exist in the immediate vicinity. The area soil is classified as being either rock or a thin (less than 20 inches) cover of borderline clay-silt overlying rock. Thick grass surrounds the structure.

2.5.2 Sensitive Populations, Habitats, and Natural Resources

Four endangered water birds are found within the West Loch's wetland area: the Hawaiian stilt, Hawaiian gallinule, Hawaiian coot, and Hawaiian duck. Building 49 is not located near the sensitive

waterfront area, and no impact from the remedial action activities to endangered species or their critical habitat was noted.

2.5.3 Groundwater Classification

The State of Hawaii does not currently have an EPA-approved comprehensive state groundwater protection plan in place; therefore, federal and other state guidance was considered to determine the status of groundwater at the Building 49 site, as well as site-specific factors. The groundwater at the Building 49 site was classified in accordance with the *Groundwater Classification Joint Issue Paper and Site-Specific Determination for Groundwater Remediation Goals* flowchart (PACNAVFACENGCOM and EPA 2001).

For the EPA guidance (EPA 1988), groundwater is classified as Class I, II, or III. These classifications are defined as follows:

- Class I – special groundwater (highly vulnerable to contamination, an important source of drinking water, and/or ecologically important)
- Class II – groundwater currently and potentially a source for drinking water
- Class III – groundwater not a source of drinking water

In addition, according to federal guidelines, a Class I or Class II potential source of drinking water must yield a minimum of 150 gallons per day and contain a maximum of 10,000 milligrams per liter (mg/L) total dissolved solids without treatment, or greater if amenable to treatment.

Although site-specific information is not available, it is assumed for the purposes of this determination that the groundwater meets the Class II potential drinking water source criteria of 150 gallons per day and maximum 10,000 mg/L total dissolved solids without treatment. This is based on data from adjacent Pearl City (Shaw 2005) and from Ford Island sites in and around Pearl Harbor (Earth Tech 2003).

Although the shallow groundwater meets the above-mentioned criteria for a Class II potential drinking water source, the following additional site-specific hydrogeologic factors, along with relevant federal and state regulations and guidance, indicate that the shallow groundwater at the Building 49 site will not be developed in the future as a drinking water source and should not be considered as a drinking water source in the future:

- Groundwater recharge is slow, as observed in the temporary monitoring well.
- Shallow groundwater is tidally influenced.
- Sustained pumping of a drinking water well would accelerate salt water intrusion because of the hydraulic connection to seawater in Pearl Harbor, causing higher total dissolved solid concentrations.
- State of Hawaii aquifer classification and drinking water quality standards indicate that the shallow groundwater under the site is not a current or future source of drinking water according to the University of Hawaii Water Resources Research Center (Mink and Lau 1990).
- The site is within an area not regarded as a potential drinking water source, according to the State of Hawaii underground injection control (UIC) restrictions.
- State of Hawaii drinking water well permitting requirements pursuant to the Hawaii Administrative Rules require that public and private wells “be located so that they are

minimally exposed to known sources of pollutants" (DLNR, State of Hawaii 1997). It is unlikely that the state would allow the placement of a drinking water well in close proximity to Pearl Harbor. Proximity to the ocean is considered as a condition that would present a "high" or "very high" potential for contamination under the Hawaii Source Water Assessment Program.

- The Navy owns and controls future development and utilities, and is not planning to develop drinking water wells at the site.

The site-specific hydrologic and hydrogeologic conditions, along with pertinent federal, state, and local regulations and guidance, indicate that the groundwater below Building 49 does not represent a potential drinking water source.

2.6 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Current Use. West Loch is a naval magazine, which is considered industrial/commercial use. Building 49 is not currently in use. Equipment and machinery are still present within the building, and there are currently no plans to remove them. No residual staining was observed on concrete surfaces within the building. The interior concrete surfaces appeared to be in good condition, with no cracks or voids. There is no power supplied to the equipment in the building. The transformer and electrical cabinet have been removed and disposed of.

Future Use. West Loch will be maintained by the Navy for use as a naval magazine, which is considered an industrial/commercial use; however, the potential for unrestricted use was also considered. There is no current plan for building demolition.

2.7 SUMMARY OF SITE RISKS

The primary risks to human health and the environment at Building 49 are due to the presence of PCBs in soil and interior concrete. Historical information indicated dielectric fluids containing PCBs were used in electrical equipment at Building 49 prior to 1980, when the use of PCBs was discontinued. Historically, Navy routine testing and maintenance activities included discarding relatively small amounts of dielectric fluid containing PCBs on the nearby ground surface. Limited data from sampling previously conducted by Navy PWC confirmed the presence of PCB contamination in and around Building 49. PCBs were detected in the soil immediately adjacent to Building 49 at concentrations ranging from less than 1 mg/kg to 11 mg/kg.

A preliminary risk evaluation for human health and a screening risk assessment for ecological effects were not conducted for Building 49. Because PCBs were present above the 1 mg/kg and 10 µg/100 cm^2 cleanup goals for unrestricted reuse for soil and concrete, respectively, a removal action was determined to be necessary. The removal action addresses PCB contamination in soil and concrete related to the transformer and associated electrical equipment at Building 49.

Although PCBs are relatively immobile in soils, the presence of the floor trench drain within Building 49 leading to a dry well indicated a potential risk to groundwater quality. Risks to human health would also be related to dermal contact with or ingestion of PCBs in soil. Inhalation of PCBs in airborne particulates could occur during construction-related activities.

The project-specific cleanup level for PCB-contaminated soil and concrete was defined in accordance with the TSCA (40 CFR Parts 750, 761) and the DOH Tier 1 Soil Action Level (DOH 1995). After careful consideration of to-be-considered criteria and applicable and relevant regulatory requirements, the cleanup levels were specified as the following:

- Soil—The cleanup level of 1 mg/kg was established for unrestricted use in accordance with TSCA, and in compliance with DOH Tier 1 Soil Action Levels.
- Concrete and steel surfaces—The cleanup level for concrete, based on wipe samples, was established as 10 µg/100 cm^2 for unrestricted use under TSCA.

The soil removal action at Building 49 was selected to reduce the risks to human health and ecological receptors. Field screening of soil samples collected during pre-excavation and excavation activities was performed for total PCBs using PCB EnSys® 12T Soil Test System from Strategic Diagnostics by EPA Method 4020 (EPA 1998). Post-excavation confirmatory analysis for total PCBs was performed by Columbia Analytical Services in Kelso, Washington using EPA Method 8082 (EPA 1998). Columbia Analytical Services has passed the Naval Facilities Engineering Service Center (NFESC) prescreening audit and are approved for work on the Pacific Division, Naval Facilities Engineering Command (PACNAVFACENGCOM) Remedial Action Contract.

Analytical results of samples representing post-excavation conditions are below the project cleanup levels, with the exception of a single soil sample (WL029) result of 1.1 mg/kg. A risk evaluation was performed that shows the 95% upper confidence limit of the mean exposure point concentration for PCBs is 0.55 mg/kg (Shaw 2006), well below the project cleanup level of 1.0 mg/kg.

To determine whether PCBs or petroleum hydrocarbons from the drainage system had impacted groundwater, a groundwater sample was collected from a temporary monitoring well installed within the former injection well following removal of contaminated sediment and free-phase fuel hydrocarbon. The groundwater sample was sent to Columbia Analytical Services for analysis of total PCBs by EPA Method 8082, total petroleum hydrocarbons by EPA Method 8015B, volatile organic compounds by EPA Method 8260B, polynuclear aromatic hydrocarbons by EPA Method 8270C, total cadmium by EPA Method 6010B, and dissolved lead by EPA Method 7421A (EPA 1998). Analytical results for this sample show that constituents were present at concentrations below the Hawaii DOH Tier 1 action levels applicable at the time of cleanup (DOH 1996), with the exception of total lead. A follow-up analysis for dissolved lead, however, indicated lead was below the DOH Tier I action level.

Based on the post-excavation analytical results for soil and/or groundwater samples and the risk evaluation for residual PCBs in soil, the site no longer poses a threat to human health. As a result of the removal of soil and contaminated sediments containing PCB concentrations above 1 mg/kg and free phase hydrocarbons above Tier 1 action levels, followed by backfilling with clean borrow material, the potential risks to ecological receptors were also significantly reduced. No further action is planned for the site.

2.8 RESPONSE ACTION SUMMARY

2.8.1 Exterior Soil and Concrete

Based on the reported concentrations of PCBs, a time-critical removal action was undertaken to remove and dispose of PCB-contaminated soil from areas immediately adjacent to the building and in the drain system associated with the building, and to remediate, as necessary, exterior concrete surfaces impacted by PCBs. The project-specific cleanup levels were established at 1 mg/kg for soil and 10 µg/100 cm^2 for concrete and steel surfaces, in accordance with the TSCA as specified in the approved Final Work Plan (IT 1999b). Analytical results from samples collected at the concrete apron fronting the building indicated remediation of the concrete surface was not required.

Excavation of exterior soil was conducted in August 1999. Activities were guided using field immunoassay screening to delineate the vertical and lateral extent of PCB contamination. The final

depth of excavation ranged from 1 foot to 1-1/2 feet. When the lateral and vertical limits of excavation were reached, verification soil samples were collected and submitted to an approved offsite laboratory to confirm that in-place soil concentrations of PCBs did not exceed the project cleanup level of 1 mg/kg. Analytical results of samples representing post-excavation conditions are below the project cleanup levels, with the exception of a single soil sample result of 1.1 mg/kg. A risk evaluation was performed that shows the 95% upper confidence limit of the mean exposure point concentration is well below the project cleanup level of 1.0 mg/kg.

A total of 10 cubic yards of soil contaminated with PCBs were removed from the vicinity of Building 49 and disposed of at an off-island facility approved to accept TSCA and CERCLA wastes. A layer of well-graded crushed rock was placed on the floor of the excavation area to delineate the limit of the excavation. The excavation was then backfilled and restored to match surrounding areas.

2.8.2 Floor Drains and Injection Well

In 2000, an injection well and associated piping fed by a floor trench drain in the building were also investigated and subsequently removed (Shaw 2006). The floor trench drain discharged to a 4-inch-diameter steel pipe through the rear (east) wall of the building to an unregistered injection well located approximately 3 feet from the rear wall. Sediment was observed at the bottom of the well at a depth of 16.5 feet below ground surface (bgs). In addition, an 8-inch black steel pipe entered the well from the east, extending approximately 40 feet from the building. Wipe samples collected from the floor drains and 4-inch discharge pipe contained PCB concentrations below the remediation goal of 10 µg/100 cm^2. Soil/sludge samples collected from the injection well contained PCB concentrations up to 3.5 mg/kg, which is in excess of the remediation goal of 1 mg/kg.

The drain box, the 4-inch steel pipe, and the 8-inch pipe were excavated and disposed of as construction debris. Soil samples collected from the resulting excavation trench for field screening contained concentrations of PCBs less than 1 mg/kg. An offsite laboratory confirmed these screening results.

The DOH, Safe Drinking Water Branch, UIC Program was consulted in order to determine requirements for injection well abandonment. Closure of the well required that sediment be removed and the total depth of the well recorded prior to abandonment. A drill rig was used to remove sediment from the injection well. Removed sediment was placed directly into tri-wall boxes for transport and disposal. Groundwater was encountered at 20.5 feet bgs. Saturated sediment was contained in 55-gallon Department of Transportation (DOT)-approved steel drums pending disposal. The sediment had a strong petroleum odor. Sediment removal continued to a depth of 33 feet bgs, where native material was encountered.

A groundwater sample was collected from the injection well and submitted for offsite laboratory analysis for hydrocarbon constituents and PCBs. An approximate 1/2-inch layer of hydrocarbon fuel was observed floating on the water sample. The mixed phase hydrocarbon fuel and groundwater combined sample contained 0.0159 mg/L of PCBs. This analytical result was not considered to reflect the groundwater condition at the site because of contamination from the hydrocarbon fuel layer. The source of the hydrocarbon fuel was presumed to be former UST WL-49.

A 4-inch-diameter temporary monitoring well was installed within the injection well to obtain a representative sample of groundwater without the hydrocarbon fuel phase. The temporary well was developed by two events of purging to dryness over a 2-week period. The development water had a strong petroleum odor. Following a 1-week period to allow the well to recharge, a 1/32-inch hydrocarbon layer was reported. Absorbent pads were lowered into the well several times over a 1-week period in an attempt to remove the hydrocarbon layer from the groundwater. This was repeated

until only a slight sheen remained. The used absorbent pads were placed in drums with the removed sediment. In an effort to prevent contamination of the groundwater sample from the remaining sheen on the water, a 2-inch-diameter blank casing, with the lower end capped, was inserted into the well to a depth approximately 10 feet below the top of the water. The cap was then knocked off the casing and groundwater allowed to enter the casing. A sample of this water was collected using a clean bailer and submitted to the offsite laboratory for analysis. PCB and hydrocarbon constituent results in this single-phase groundwater sample were below DOH Tier 1 Action Levels applicable at the time of cleanup (DOH 1996). The temporary well was abandoned by removing the casing and filling the well bore with a cement grout. A closure letter for the abandonment of the injection well was received from Hawaii DOH Safe Drinking Water Branch Environmental Management Division (DOH 2002).

2.8.3 Interior Concrete and Underlying Soil

The Navy PWC Pearl Harbor conducted the investigation and remediation of the interior of the building between April 1997 and September 2002. The cleanup consisted of the transformer removal and the concrete and soil removal. Following removal of the transformer at Building 49, wipe samples were taken to detect the presence of PCB contamination. Only one of nine concrete floor wipe samples reported a PCB concentration (300 µg/100 cm^2) above the cleanup goal of 10 µg/ 100 cm^2. The sample was located at the southeast corner of the building below the former Electrical Cabinet location. As a result, the impacted section of the concrete slab was removed, and a sample was collected from the soil beneath the slab. PCBs were reported in the soil at a concentration of 1.9 mg/kg. After the removal of approximately 12 inches of soil, three confirmation soil samples indicated that all PCB concentrations greater than 1 mg/kg had been removed. Based on the analytical results, no further action is required within or beneath Building 49. The area of excavation was backfilled with inert material. The building is not in use, and it has been locked to restrict entry. PCB-contaminated soil and concrete were loaded into 55-gallon drums and disposed of at an off-island facility approved to accept TSCA and CERCLA wastes.

A copy of the PWC Summary Report is included as Appendix A of the Final RVR (Shaw 2006).

2.9 NO FURTHER ACTION REQUIRED

No further action is required at the Building 49 site to be protective of human health and the environment. Removal actions have met their objectives of removing PCBs and fuel hydrocarbons to acceptable cleanup levels. Removal of PCB-contaminated soil and concrete exceeding their cleanup levels mitigated risks of potential exposure to PCBs by future residents and industrial workers, prevented offsite migration of PCBs, and reduced harm to human health and the environment from the bioaccumulation of PCBs in the food chain. Removal of fuel hydrocarbons in soil and groundwater, and the abandonment of the floor trench drain and injection well system, also resulted in a reduction in mobility and elimination of a potential migration pathway. The removal action objectives have been met, and no further action is required to be protective of human and ecological receptors.

2.10 DOCUMENTATION OF SIGNIFICANT CHANGES

No significant changes to the proposed plan were required based on the public comments received (see Attachment A).

3. Responsiveness Summary

The public comment period for the proposed plan was held between June 11, 2006 and July 11, 2006. The public meeting for the proposed plan held on June 6, 2006. Responses to these comments are presented as a Responsiveness Summary in Attachment A, and have also been incorporated within this ROD.

3.1 COMMUNITY PREFERENCES

No community preferences were requested or identified.

3.2 INTEGRATION OF COMMENTS

Comments received and corresponding comment responses are integrated in Attachment A. Corresponding verbal and written changes to this document incorporate these responses. No changes to the selected decision are indicated in these comments.

4. References

40 Code of Federal Regulations (CFR) 300. *The National Oil and Hazardous Substances Pollution Contingency Plan, Comprehensive Environmental Response, Compensation, and Liability Act*.

40 Code of Federal Regulations (CFR) 761. 1988. *Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions*. Amended June 29.

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Attachment A
Responsiveness Summary

Project Title: Final Proposed Plan
Building 49 Auxiliary Power Plant
Naval Magazine Pearl Harbor,
West Loch Branch, Oahu, Hawaii
Reviewer: Steven Mow, DOH, Hawaii
Verbal Comments from June 6, 2006 Public Meeting

Item	Section No.	Comment
General		
1a	General	During remediation of PCBs at this site, fuel hydrocarbons were observed in groundwater at the water table. The public meeting presentation did not address this groundwater issue. What is the source of the hydrocarbons in groundwater? These concerns should be addressed by the ROD.
Response: The ROD provides detail regarding the fuel hydrocarbons. The hydrocarbon source was UST WL-49, used to store fuel for the Building 49 auxiliary power generator.		
1b	General	How were the hydrocarbons addressed?
Response: The UST and associated soil were excavated and disposed.		
1c	General	Was a closure report prepared and submitted to DOH?
Response: OHM Remediation Services (1996) documents the tank closure.		